

# Druckexemplar

## CLAIMS

What is claimed is:

1. A variable valve gear comprising at least:

a casing;

a cam (2) mounted on a camshaft (1) for rotation therewith;

a valve (4);

a roller (6);

a valve actuator (5) for displacing said valve (4), said valve actuator (5) is displaced by said roller (6);

a control surface (7);

characterized in that:

the control surface (7) is angularly displaceable about an axis (9) of the casing;

the control surface (7) substantially moves only when a different valve stroke is desirable;

the roller (6) is arranged among the cam (2), the control surface (7) and the valve actuator (5) in substantially simultaneous abutment with all three of them;

the roller (6) is displaced along the control surface (7) under the camming action of the cam (2);

and the valve (4) is displaced by the valve actuator (5) at a stroke which is variable depending on the angular displacement of the control surface (7);

2. ~~As in claim 1 characterized in that:~~ *A variable valve gear according to claim 1, characterized in that:*

the roller (6) is a substantially free roller trapped among the cam (2), the control surface (7) and the valve actuator (5).

3. A variable valve gear according <sup>to</sup> claim 1 for operation with variable valve duration, characterized in that:

the control surface (7) comprises an initial lost motion part followed by an activation part;

the initial lost motion part substantially is a surface of revolution whose axis coincides the axis (9) about which the control surface (7) is angularly displaceable;

the axis (9) about which the control surface (7) is angularly displaceable and the axis of the roller (6) are substantially offset to each other when, with the valve (4) closed, the roller (6) is in touch to the basic circle region of the cam (2).

4. A variable valve gear according to claim 1, characterized in that:

the axis (9), about which the control surface (7) is angularly displaceable, substantially coincides to the axis of the roller (6) when, with the valve (4) closed, the roller (6) is in contact to the basic circle ~~region~~ of the cam (2).

5. ~~As in claim 1 characterized in that:~~ *A variable valve gear according to claim 1, characterized in that:*

the control surface (7) and the surface (8) on the valve actuator (5) along which the roller (6) contacts the valve actuator (5) are plane or cylindrical.

6. A variable valve gear comprising at least:

a cam (2) mounted on a camshaft (1) for rotation therewith;

a valve (4);

a valve actuator (51) for displacing said valve (4);

an angularly displaceable control surface (71);

a roller (61);

a lever (100);

characterized in that:

the control surface (71) substantially moves only when a different valve stroke is desirable;

the roller (61) is mounted at one end (101) of the lever (100);

the lever is swivelably coupled, at its other end (102), to the valve actuator (51), with the swivel joint being a substantially non-moving swivel joint on the valve actuator (51);

*arranged*  
the roller (61) is ~~is~~ among the cam (2) and the control surface (71) in substantially simultaneous abutment with both of them;  
the roller (61) is displaced along the control surface (71) under the camming action of the cam (2);  
the valve actuator (51) is displaced by the roller (61), via the lever (100);  
and the valve (4) is displaced by the valve actuator (51) at a stroke which is variable depending on the angular displacement of the control surface (71).  
7. A variable valve gear comprising at least:

a casing;  
a cam (2) mounted on a camshaft (1) for rotation therewith;  
a valve (4);  
a valve actuator (5) for displacing said valve (4);  
an angularly displaceable, about an axis (9) of said casing, control surface (7);  
a rocker (35) comprising a surface (37), the rocker (35) is driven by the cam (2) to pivot in an oscillatory manner;  
a roller (6);  
characterized in that:  
the control surface (7) substantially moves only when a different valve stroke is desirable;  
the roller (6) is arranged among the surface (37), the control surface (7) and the valve actuator (5) in simultaneous abutment with all three of them;  
the surface (37) of the rocker (35), under the camming action of the cam (2), displaces the roller (6) along the control surface (7);  
the valve actuator (5) is displaced by the roller (6);  
and the valve (4) is displaced by the valve actuator (5) at a stroke which is variable depending on the angular displacement of the control surface (7).

8. ~~As in claim 7 characterized in that:~~

*A variable valve gear according to claim 7, characterized in that:*

Printed: 11-11-2008

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the rocker (35) is connected to a first end of a push rod (34) which has a second end which engages the cam (2).